



PROTON-ELECTROTEX RUSSIA

High power cycling capability
Low on-state and switching losses
Optimized for line frequency rectifiers
Designed for traction and industrial applications

Rectifier Diode Chip Type DR40-630-40

Maximum allowable average forward current ¹⁾				I _{FAV}		630 A			
Repetitive peak reverse voltage				V _{RRM}		2400...4000 V			
V _{RRM} , V	2400	2600	2800	3000	3200	3400	3600	3800	4000
Voltage code	24	26	28	30	32	34	36	38	40
T _j , °C	-60...+150								

MAXIMUM ALLOWABLE RATINGS

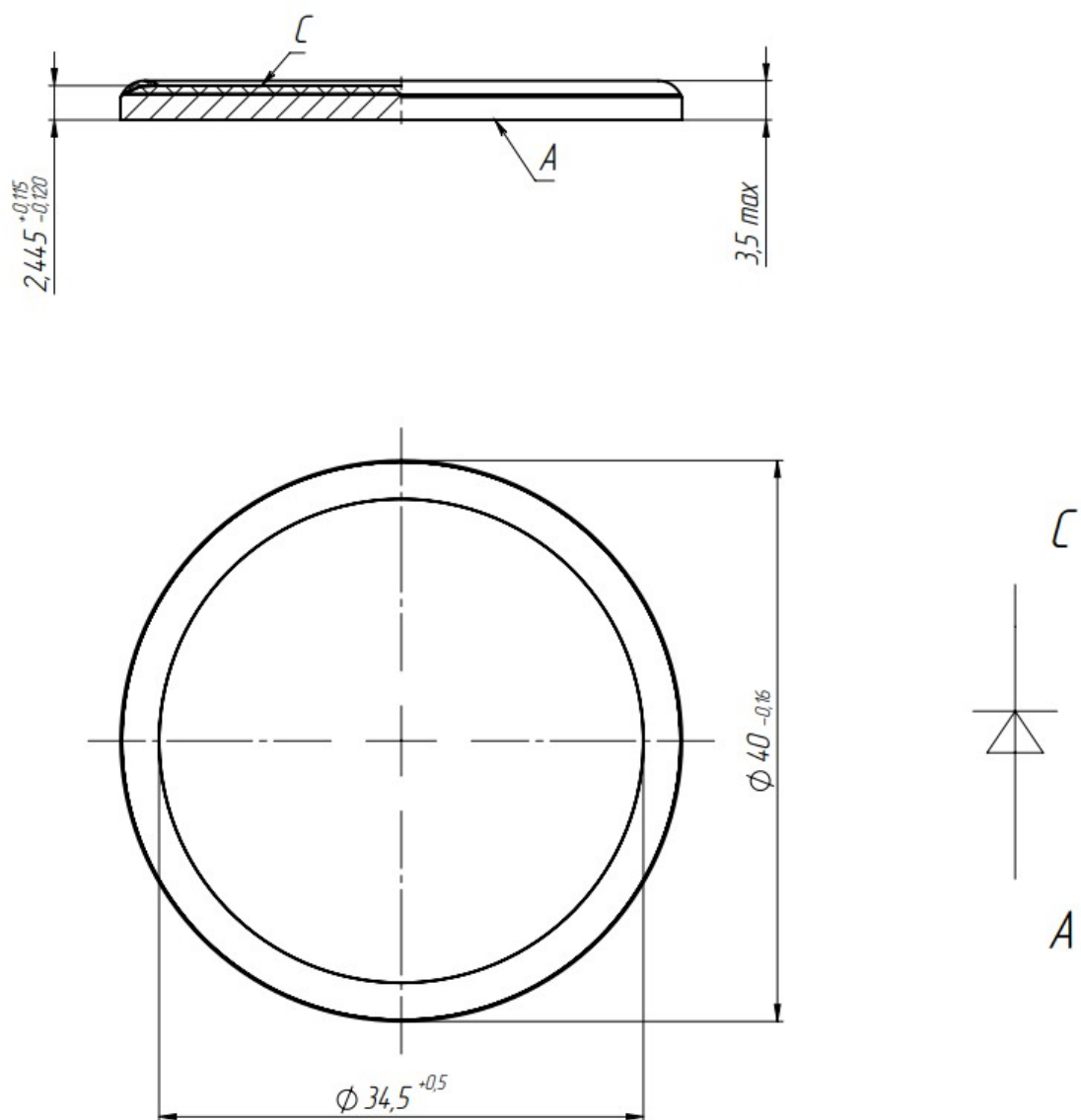
Symbols and parameters		Units	Values	Test conditions	
ON-STATE					
I _{FAV}	Maximum allowable average forward current ¹⁾	A	630 840	T _c =117 °C; Double side cooled; T _c =100 °C; Double side cooled; 180° half-sine wave; 50 Hz	
I _{FRMS}	RMS forward current ¹⁾	A	989	T _c =117 °C; Double side cooled; 180° half-sine wave; 50 Hz	
I _{FSM}	Surge forward current ¹⁾	kA	14.5 17.0	T _j =T _{j max} T _j =25 °C	180° half-sine wave; t _p =10 ms; single pulse; V _R =0 V
			15.0 17.0	T _j =T _{j max} T _j =25 °C	180° half-sine wave; t _p =8.3 ms; single pulse; V _R =0 V
I ² t	Safety factor ¹⁾	A ² s·10 ³	1050 1440	T _j =T _{j max} T _j =25 °C	180° half-sine wave; t _p =10 ms; single pulse; V _R =0 V
			930 1190	T _j =T _{j max} T _j =25 °C	180° half-sine wave; t _p =8.3 ms; single pulse; V _R =0 V
BLOCKING					
V _{RRM}	Repetitive peak reverse voltages	V	2400...4000	T _{j min} < T _j < T _{j max} ; 180° half-sine wave; 50 Hz	
V _{RSM}	Non-repetitive peak reverse voltages	V	2500...4100	T _{j min} < T _j < T _{j max} ; 180° half-sine wave; single pulse	
V _R	Reverse continuous voltages	V	0.6·V _{RRM}	T _j =T _{j max}	
THERMAL					
T _{stg}	Storage temperature	°C	−60...+50		
T _j	Operating junction temperature	°C	−60...+150		
MECHANICAL					
F	Mounting force ¹⁾	kN	14.0...16.0		

CHARACTERISTICS

Symbols and parameters		Units	Values	Conditions	
ON-STATE					
V _{FM}	Peak forward voltage ¹⁾ , max	V	2.00	T _j =25 °C; I _{FM} =1978 A	
V _{F(TO)}	Forward threshold voltage, max	V	1.034	T _j =T _{j max} ;	
r _T	Forward slope resistance ¹⁾ , max	mΩ	0.568	0.5 π I _{FAV} < I _T < 1.5 π I _{FAV}	
BLOCKING					
I _{RRM}	Repetitive peak reverse current, max	mA	70	T _j =T _{j max} ; V _R =V _{RRM}	
THERMAL					
R _{thjc}	Thermal resistance, junction to case ¹⁾ , max	°C/W	0.027	Direct current	Double side cooled
R _{thjc-A}			0.060		Anode side cooled
R _{thjc-K}			0.049		Cathode side cooled
MECHANICAL					
m	Weight, max	g	27.20		

PART NUMBERING GUIDE					NOTES
DR	40	630	40	1) Depending on the specifications of the housing used. The specified values are relevant when using the Proton-Electrotex D.C2 housing.	
1	2	3	4		
1. Rectifier Diode Chip					
2. Maximum diameter, mm					
3. Average forward current, A					
4. Voltage code					

OVERALL DIMENSIONS



All dimensions in millimeters

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